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EXAMINER
CANTELMO, GREGG

ART UNIT	PAPER NUMBER
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/834,389	FRANKLIN ET AL.	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communicati n appears on the cover sheet with th correspondence address --

Peri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 October 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other:

DETAILED ACTION

Priority

1. The U.S. patent Office acknowledges the instant application's priority claims to U.S. provisional Application Nos. 60/226,471 and 60/249,662.

2. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119 as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

Declaration

3. The declaration filed February 22, 2002 has been received and the petition therein has been granted.

Information Disclosure Statement

4. The information disclosure statement filed June 4, 2001 has been placed in the application file and the information referred to therein has been considered as to the merits.

Drawings

5. The drawings received October 1, 2001 are acceptable for examination purposes.

Specification

6. The disclosure is objected to because of the following informalities: see item 1 above with respect to referencing the priority applications. Appropriate correction is required.

7. The abstract of the disclosure is objected to because it is not in the form of a single paragraph. Correction is required. See MPEP § 608.01(b). In addition, although the filing date of the instant application predates the rule change to the abstract as set forth in 37 CFR 1.72, it is requested that Applicant limit the abstract to 150 words or less to conform to PCT applications and Pre-Grant Publications. See 37 CFR 1.72 and rule changes applied thereto. See MPEP § 608.01(b).

Claim Objections

8. Claim 21 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims recite process conditions for forming the components in the apparatus without further defining any structure to the apparatus, thus with respect to the claimed invention. Absent any

additional structure recited within these claims, the claims fail to further limit the apparatus.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5, 7-8, 11-13, 15-22 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 2323700-A (GB '700).

GB '700 discloses a fuel cell comprising: a. a single flexible or ridged bipolar separator plate 11 or 12; b. a flexible membrane electrode assembly 5; c. a flexible bond, seal or gasket interposed between said single flexible or ridged separator plate and said flexible membrane electrode assembly, wherein said flexible bond, seal or gasket between said flexible or ridged separator plate and said flexible membrane electrode assembly comprises the fuel cell module, and wherein said flexible bond, seal or gasket may or not be an adhesive bond, seal or gasket which encapsulates edge portions of said flexible or ridged separator plate (optional) and said flexible membrane electrode assembly and wherein said flexible bond, seal or gasket seals the edge portions of said flexible membrane assembly to prevent the release of reactants from the fuel cell (Figs. 2-5, page 2, ll. 2-6, 13-16; page 3, ll. 2 and 7-12; page 7, ll. 1-10; page 8, ll. 10-12; page 10, ll. 2-4; page 12, ll. 1-15 as applied to claims 1 and 2).

Note the process limitations of securing the edge portion of the plate has not been accorded patentable weight as applied to the apparatus of claims 1 and 2. While the bending over and crimping of the edge would structurally provide a different configuration (and thus be given patentable weight to an overlapped edge portion of the separator plate), the rolling process does not clearly require such an overlap to be present. Thus the arrangement of claim 2, with respect to the apparatus, having the edges of the separator secured to the MEA and does not have an edge overlap portion is drawn to the same structure obtained in the instant claim by rolling (as applied to claim 2).

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed

product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989). See MPEP section 2113. This also applies to claim 21.

The fuel cell is assembled as a single cell module which is assembled with additional single cell modules to create a fuel cell stack or unit (page 8. ll. 10-12 as applied to claim 3).

The module of claim 3 comprises a bipolar separator plate, MEA, adhesive bond between the MEA and separator plate and manifolds having an adhesive disposed between the manifolds and separator plate (Figs. 1-5 and page citations indicated above as applied to claim 4).

The separator plate comprises a metal material, a composite material, a polymeric plastic material, or combinations thereof (page 2, ll. 1-6 as applied to claim 5).

The assembly as shown in Figs. 3 and 4 is a side view having straight opposing ends and in 3 dimensions would be either a square configuration or a rectangular configuration (Figs. 1 and 2 as applied to claim 7).

The fuel cell of claims 1 or 2 above wherein said adhesive, seal or gasket is applied to said separator plate or said adhesive, seal or gasket is applied to said membrane electrode assembly and said separator plate and said membrane electrode assembly are bonded and or sealed together as a single unit (Figs. 1-5 and page citations indicated above as applied to claim 8).

The seal is in a reactant flow field plate and thus is part of the reactant flow field (as applied to claim 11).

The manifolds can be external to the BSP (paragraph bridging pages 10 and 11 as applied to claim 12).

The manifolds are bonded to the separator (page 12, ll. 1-12 as applied to claim 13).

The each manifold is a single manifold or the entire manifold system is a plurality of manifolds (Figs. 1 and 2 as applied to claims 15 and 16).

The manifold has passages for a single reactant or multiple reactants and or a coolant or multiple coolants (as applied to claim 17).

The bond material is an adhesive (abstract as applied to claim 18).

The edge of the separator is a separate part from other components of the cell such as the MEA. Again claim 19 does not require that the edge be a separate part from the separator and could be a separate part relative to any other part of the fuel cell apparatus (Figs. 1 and 2 as applied to claim 19).

The edge of the separator, which is a single piece, is continuous around the periphery of the entire fuel cell (Figs. 1 and 2 as applied to 20).

With respect to claim 22, claim 22 does not require that the gasket be explicitly chosen as the bond, seal, adhesive or gasket of claims 1 and 2. Claim 22 merely looks to define one of the species of claims 1 and 2. Since the prior art discloses using an adhesive bonding material, and claim 22 does not require the gasket be chosen, claim 22 is covered under the rejection of GB '017 in view of Fukuda since it selects another of the materials apart from the gasket.

11. Claims 1-5, 7-13, 15-22 are rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art of GB 2323700-A (GB '700).

The teachings of GB '700 as discussed above are incorporated herein.

The admitted prior art of GB '700 uses a gasket as opposed to an adhesive seal (see pages 2-4). The term adhesive or bond as used above is applied herein as the gasket material disclosed in the admitted prior art of GB '700 which under compression functions as a sealing bond.

Thus the admitted prior art additionally anticipates the gasket as recited in claims 9, 10 and 22 and the material of said gasket is an elastomeric material (see page 3 as applied to claims 10 and 22).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB '700 in view of Fukuda as applied to claims 1 and 2 above, and further in view of U.S. patent No. 4,737,421 (Uemura).

The difference between instant claim 6 and GB '700 is that GB '700 does not disclose of the thickness and surface area of the separator.

Uemura discloses that the separator should be thin enough to enhance the electrical conductivity of the separator (col. 2, ll. 30-32) and have a surface area of

One of ordinary skill in the art would have found it obvious to employ the thickness and surface area of claim 6 in order to optimize the mechanical strength of the and electrical conductivity of the separator.

Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical. In re Boesche , 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '700 by optimizing the thickness and surface area of the separator with in the range of claim 6 since such optimization is known in the art for providing a separator having high electrical conductivity and mechanical strength.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB '700 in view of Fukuda as applied to claims 1 and 2 above, and further in view of U.S. patent No. 4,212,929 (Grevstad).

The difference between instant claim 6 and GB '700 is that GB '700 does not disclose of the material of the external manifolds.

As discussed above GB '700 teaches that the manifolds may be external.

Use of metal or plastic materials for manifolds are well known in the art and selection of such materials for the manifold would have been an obvious choice (Grevstad, col. 4, ll. 35-45).

The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '700 by selecting the external manifold material to be a metal, plastic, etc since such materials are commonly used in the art for manifolds and the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

15. Claims 1-5, 7, 8, 11-15, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2326017-A (GB '017) in view of U.S. patent No. 4,818,640 (Fukuda).

GB '017 discloses a fuel cell comprising: a. a single flexible or ridged bipolar separator plate ; b. a flexible membrane electrode assembly 40"; c. a flexible bond, seal or gasket 48 interposed between said single flexible or ridged separator plate and said flexible membrane electrode assembly, wherein said flexible bond, seal or gasket between said flexible or ridged separator plate and said flexible membrane electrode

assembly comprises the fuel cell module, and wherein said flexible bond, seal or gasket may or not be an adhesive bond, seal or gasket which encapsulates edge portions of said flexible or ridged separator plate (optional) and said flexible membrane electrode assembly and wherein said flexible bond, seal or gasket seals the edge portions of said flexible membrane assembly to prevent the release of reactants from the fuel cell (Fig. 4 as applied to claims 1 and 2).

Note the process limitations of securing the edge portion of the plate has not been accorded patentable weight as applied to the apparatus of claims 1 and 2. While the bending over and crimping of the edge would structurally provide a different configuration (and thus be given patentable weight to an overlapped edge portion of the separator plate), the rolling process does not clearly require such an overlap to be present. Thus the arrangement of claim 2, with respect to the apparatus, having the edges of the separator secured to the MEA and does not have an edge overlap portion is drawn to the same structure obtained in the instant claim by rolling (as applied to claim 2).

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).

"The Patent Office bears a lesser burden of proof in making out a case of

prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989). See MPEP section 2113. This also applies to claim 21.

The fuel cell is assembled as a single cell module which is assembled with additional single cell modules to create a fuel cell stack or unit (Fig. 4 shows a stack as applied to claim 3).

The separator plate comprises a metal material, a composite material, a polymeric plastic material, or combinations thereof (page 3, line 28 as applied to claim 5).

The assembly as shown in Figs. 3 and 4 is a side view having straight opposing ends and in 3 dimensions would be either a square configuration, a rectangular configuration, polygonal configuration, or circular configuration or any other rounded configuration (Figs. 3 and 4 as applied to claim 7).

The fuel cell of claims 1 or 2 above wherein said adhesive, seal or gasket is applied to said separator plate or said adhesive, seal or gasket is applied to said membrane electrode assembly and said separator plate and said membrane electrode

assembly are bonded and or sealed together as a single unit (abstract and Fig. 4 as applied to claim 8).

The edge of the separator is a separate part from other components of the cell such as the MEA. Again claim 19 does not require that the edge be a separate part from the separator and could be a separate part relative to any other part of the fuel cell apparatus (Fig. 4 as applied to claim 19).

The edge of the separator, which is a single piece, is continuous around the periphery of the entire fuel cell (Fig. 4 as applied to 20).

The difference between GB '017 and the instant claims is that GB '017 does not disclose of a manifold for the delivery and removal of reactants and reactant products to and from the fuel cell reactive areas where said manifolds may be either a single or multiple manifolds; and e. a bond interposed between said manifold and said flexible or ridged separator plate, wherein said bond affixes said manifold to said flexible or ridged separator plate and wherein said bond provides a seal between said manifold and said flexible or ridged separator plate to prevent the release of reactants from the fuel cell (claims 1 and 2); of the fuel cell module in claim 3 comprises said single flexible or ridged bipolar separator plate, said membrane electrode assembly, said flexible adhesive bond, seal or gasket between said single flexible or ridged bipolar separator plate and said membrane electrode assembly, said manifold or manifolds, said adhesive bond or bonds interposed between said manifold or manifolds and said flexible or ridged bipolar separator plate (claim 4), of the adhesive, gasket, bond forming part of the flow field (claim 11); of the manifolds are external to the BSP and the MEA as

to not cause disruption or through holing of the MEA either internal or external to the electrochemically active area (claim 12), of the manifold being bonded to the BSP (Claim 13), the manifolds comprises of a plastic material, or a composite material, or a metallic material (claim 14), wherein the manifold is a single manifold (claims 15); wherein the said bond between said manifold or manifolds and said membrane electrode assembly comprises a plastic material, a elastomeric material, a composite material, a metallic material, a foam material, or combinations thereof (claim 18).

Fukuda discloses a fuel cell array wherein the manifold 2 is disposed adjacent to the separator plate and the two components are bonded together (col. 8, ll. 20-26 as applied to claims 1, 2, 4)

The adhesive bond, seal or gasket of forms part of the reactant flow field (Fig. 4 as applied to claim 11).

The manifolds are external to the BSP (as applied to claim 12).

The manifolds are bonded to the separator (as applied to claim 13).

The manifold 2 is a single manifold (Fig. 5 as applied to claim 15).

The manifold has passages for a single reactant or multiple reactants and or a coolant or multiple coolants (as applied to claim 17).

The bond material is an adhesive (col. 16, ll. 61-68 as applied to claim 18).

With respect to claim 22, claim 22 does not require that the gasket be explicitly chosen as the bond, seal, adhesive or gasket of claims 1 and 2. Claim 22 merely looks to define one of the species of claims 1 and 2. Since the prior art discloses using an adhesive bonding material, and claim 22 does not require the gasket be chosen, claim

22 is covered under the rejection of GB '017 in view of Fukuda since it selects another of the materials apart from the gasket.

The motivation for providing the manifold to the separator plate as taught by Fukuda is that it provides an efficient means for distributing the oxidant and fuel to the electrodes in the fuel cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '017 by providing the manifold to the separator plate as taught by Fukuda since it would have provided an efficient means for distributing the oxidant and fuel to the electrodes in the fuel cell.

The motivation for providing a bond between the separator and manifold is that it prevents leaking of the oxidant and fuel from their respective inlets and outlets and also prevents contaminant gases and materials from permeating into the oxidant and fuel channel flow paths.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '017 by providing a bond between the separator and manifold since it would have prevented leaking of the oxidant and fuel from their respective inlets and outlets and also prevented contaminant gases and materials from permeating into the oxidant and fuel channel flow paths.

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB '017 in view of Fukuda as applied to claims 1 and 2 above, and further in view of U.S. patent No. 4,737,421 (Uemura).

The differences not yet discussed are of the surface area and thickness of the separator.

Uemura discloses that the separator should be thin enough to enhance the electrical conductivity of the separator (col. 2, ll. 30-32) and have a surface area of

One of ordinary skill in the art would have found it obvious to employ the thickness and surface area of claim 6 in order to optimize the mechanical strength of the and electrical conductivity of the separator.

Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical. In re Boesche , 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '017 by optimizing the thickness and surface area of the separator with in the range of claim 6 since such optimization is known in the art for providing a separator having high electrical conductivity and mechanical strength.

17. Claims 9, 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB '017 in view of Fukuda as applied to claims 1 and 2 above, and further in view of the background art of U.S. patent No. 6,057,054 (Barton).

The differences not yet discussed are of the bond being a gasket (claims 9, 10 and 22) and further of the material of the gasket (claims 10 and 22).

While claim 22 does not explicitly recite the gasket is the chosen material, in the event that claim 22 is modified to select such, the selection of the gasket would have been obvious as discussed herein.

It is desirable to seal reactant fluid stream passages to prevent leaks or inter-mixing of the fuel and oxidant fluid streams. Fuel cell stacks typically employ resilient seals between stack components. Such seals isolate the manifolds and the electrochemically active area of the fuel cell MEAs by circumscribing these areas. For example, a fluid tight seal may be achieved in a conventional fuel cell stack by using elastomeric gasket seals interposed between the flow field plates and the membrane, with sealing effected by applying a compressive force to the resilient gasket . Accordingly, it is important for conventional fuel cell stacks to be equipped with seals and a suitable compression assembly for applying a compressive force to the seals (Barton, col. 2, ll. 36-48).

The motivation for using a gasket is that it provides a means for sealing the fluid streams in a fuel cell system and prevent leaks or inter-mixing of the fuel and oxidant streams.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of GB '017 by using a gasket since it would have provided a means for sealing the fluid streams in a fuel cell system and prevented leaks or inter-mixing of the fuel and oxidant streams.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPAT No. 6,338,492 discloses of a seal disposed between the bipolar separator and MEA (Fig. 1). USPAT No. 6,379,795 discloses of a seal disposed between the bipolar separator and MEA (Fig. 1). USPAT No. 4,514,475 discloses bending separator edges back onto themselves (Fig. 1).

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. FAX communications should be sent to the appropriate FAX number: (703) 872-9311 for After Final Responses only; (703) 872-9310 for all other responses. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gregg Cantelmo
Patent Examiner
Art Unit 1745

gc

July 28, 2003